THE LIFE HISTORY OF *CANDALIDES GILBERTI* WATERHOUSE (LEPIDOPTERA: LYCAENIDAE)

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Abstract

The immature stages of *Candalides gilberti* from the Northern Territory are described. *Decaisnina signata* (F. Muell. ex Benth.) Tiegh. (Loranthaceae) is recorded as a food plant.

Introduction

Candalides gilberti is recorded from north-western Australia and the Northern Territory (Common and Waterhouse 1981) and from Doomadgee in the Gulf country of northern Queensland (Puccetti 1991). Its life history has not been described, although a pupal case believed to be of this species was found under bark of *Eucalyptus* bearing mistletoe at Mt Bundey, NT (Common and Waterhouse 1981).

In July 1991, DNW collected eggs and larvae of *C. gilberti* from mistletoe parasitising *Alstonia actinophylla* (A. Cunn.) K. Schum. (Apocynaceae) at Stuart Park, a suburb of Darwin. Here we describe the immature stages, which were reared to adults by PRS at Bundaberg.

Immature stages

Egg (Fig. 1). Dome-shaped with raised nipple surrounding sunken micropyle, finely pitted, without spines; white. Average diameter 0.71 mm (n = 4).

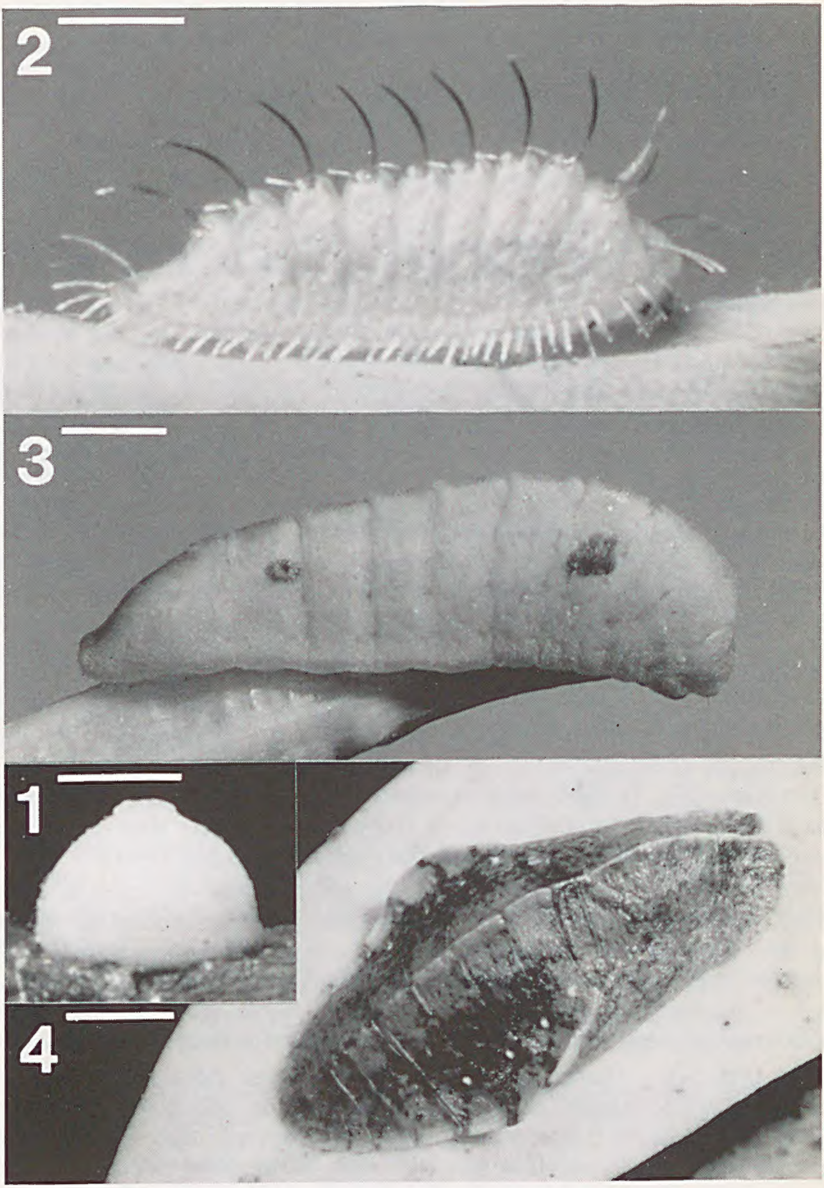
First instar (Fig. 2). Body with pronounced dorsal ridge, 2 rows of long pale dorsal hairs with brownish tips rising above 2 rows of very short pale dorsal hairs, plus short pale marginal hairs; body yellow, head pale brown.

Final instar (Fig. 3). Body laterally compressed with pronounced dorsal ridge, hairless viewed from above but with short pale hairs around the margin of the central ventral area that contains the legs and prolegs; green with variable brown dorsolateral markings, especially on abdominal segments 1 and 6, markings sometimes fused dorsally; prothoracic and anal plates sunken, green; head green. Newcomer's organ and tentacular organs present.

Pupa (Fig. 4). Thorax and abdomen with dorsal ridge, body flattened anteriorly with rounded flanges and small median indentation, abdomen flattened with lateral flanges strongly upturned anteriorly; reddish brown with variable dark brown mottling and with dark brown transverse bar on first abdominal segment, abdominal flanges and dorsal ridge paler, thoracic ridge white. Attached by anal hooks and central girdle.

Life history

The food plant at Darwin was *Decaisnina signata* (F. Muell. ex Benth.) Tiegh. (Loranthaceae).



Figs 1-4. *Candalides gilberti*: (1) egg, lateral view; (2) first instar larva (head on right); (3) final instar larva (head on right); (4) pupa. Scale bars (1, 2) = 0.4 mm, (3, 4) = 2 mm.

Eggs were laid singly, mostly on flower buds but also on young leaves. Larvae fed mainly on flower buds but also on young soft new shoots. They are well camouflaged when feeding on leaf margins, as their flattened profile follows the leaf outline and their brownish dorsolateral markings resemble necrotic areas on the plant. Several species of ants were seen on the mistletoe flowers but did not appear to be attending the larvae. Larvae were collected throughout the year at Stuart Park, but appeared more common from October to March and in June. The seasonal distribution may be different in bushland that receives only natural rainfall. Pupae were collected on bark and leaves of the mistletoe and on its host plant.

Eggs, first and final instars and pupae of *C. gilberti* conform to descriptions and photographs of those of *C. margarita margarita* (Semper) previously obtained by PRS. Larvae of *C. margarita* also feed on mistletoe (Common and Waterhouse 1981). Adult males of the two species are very similar and have identical genitalia (Tite 1963), but females of *C. margarita* differ from those of *C. gilberti* in having large white patches on the upperside of the wings. Evidently they are closely related.

Acknowledgment

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References

COMMON, I.F.B. and WATERHOUSE, D.F. 1981. *Butterflies of Australia.* Revised ed. xiv + 682 pp. Angus and Robertson, Sydney.

PUCCETTI, M. 1991. Butterflies of Doomadgee - northwestern Queensland. *Victorian Entomologist* **21**: 142-147.

TITE, G.E. 1963. A revision of the genus *Candalides* and allied genera (Lepidoptera: Lycaenidae). *Bulletin of the British Museum of Natural History, Entomology* **14**: 199-259.